


SEP 25 2006

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Dated: September 25, 2006 Signature: 

(Sheena Hicks)

Docket No.: 333772000900  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Ankan PRAMANICK et al.

Application No.: 10/772,327

Confirmation No.: 4514

Filed: February 6, 2004

Art Unit: 2863

For: METHOD AND APPARATUS FOR TESTING  
INTEGRATED CIRCUITS

Examiner: S. Kundu

APPEAL BRIEF

MS Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on July 25, 2006, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are dealt with in the accompanying  
TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205:

- |      |   |
|------|---|
| I.   | Real Party In Interest                        |
| II   | Related Appeals and Interferences             |
| III. | Status of Claims                              |
| IV.  | Status of Amendments                          |
| V.   | Summary of Claimed Subject Matter             |
| VI.  | Grounds of Rejection to be Reviewed on Appeal |

pa-1097631

09/27/2006 EFLORES 00000012 031952 10772327

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**SEP 25 2006**

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**FROM:** Thomas Chan

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| Number of pages<br>with cover page: | <b>16</b> |  |
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**Comments:**

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Attorney Docket No.: 333772000900  
Group Art Unit: 2863  
Examiner: S. Kundu  
Serial No.: 10/772,327  
Filing Date: February 6, 2004  
Inventors: Ankan PRAMANICK et al.  
Title: METHOD AND APPARATUS FOR TESTING  
INTEGRATED CIRCUITS

Papers enclosed herewith:

1. Transmittal - 1 page
2. Fee Transmittal + duplicate copy for fee processing - 2 pages
3. Appeal Brief including Appendix A- 12 pages

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| <b>TRANSMITTAL FORM</b><br>(to be used for all correspondence after initial filing) |    | Application Number     | 10/772,327       |
|   |    | Filing Date            | February 6, 2004 |
|   |    | First Named Inventor   | Ankan PRAMANICK  |
|   |    | An Unit                | 2863             |
|   |    | Examiner Name          | S. Kundu         |
| Total Number of Pages in This Submission  | 15 | Attorney Docket Number | 333772000900     |

## ENCLOSURES (Check all that apply)

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| <input checked="" type="checkbox"/> Fee Transmittal Form + duplicate copy for fee processing - 2 pages<br><input type="checkbox"/> Fee Attached<br><input type="checkbox"/> Amendment/Reply<br><input type="checkbox"/> After Final<br><input type="checkbox"/> Affidavits/declaration(s)<br><input type="checkbox"/> Extension of Time Request<br><input type="checkbox"/> Express Abandonment Request<br><input type="checkbox"/> Information Disclosure Statement<br><input type="checkbox"/> Certified Copy of Priority Document(s)<br><input type="checkbox"/> Reply to Missing Parts/Incomplete Application<br><input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Drawing(s)<br><input type="checkbox"/> Licensing-related Papers<br><input type="checkbox"/> Petition<br><input type="checkbox"/> Petition to Convert to a Provisional Application<br><input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address<br><input type="checkbox"/> Terminal Disclaimer<br><input type="checkbox"/> Request for Refund<br><input type="checkbox"/> CD, Number of CD(s) _____<br><input type="checkbox"/> Landscape Table on CD | <input type="checkbox"/> After Allowance Communication to TC<br><input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences<br><input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) including Appendix A - 12 pages<br><input type="checkbox"/> Proprietary Information<br><input type="checkbox"/> Status Letter<br><input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):<br>Facsimile Cover Sheet |
| Remarks  |  |   |

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

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| Signature    |  |          |        |
| Printed name | Thomas Chan   |          |        |
| Date         | September 25, 2006  | Reg. No. | 61,543 |

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| Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).        |  | <b>Complete if Known</b> |                  |
| <b>FEE TRANSMITTAL</b><br>For FY 2006  |  | Application Number       | 10/772,327       |
|  |  | Filing Date              | February 6, 2004 |
|  |  | First Named Inventor     | Ankan PRAMANICK  |
|  |  | Examiner Name            | S. Kundu         |
|  |  | Art Unit                 | 2863             |
| <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27 |  | Attorney Docket No.      | 333772000900     |
| <b>TOTAL AMOUNT OF PAYMENT</b>   |  | <b>(\$)</b>              | 500.00           |

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| <input checked="" type="checkbox"/> Deposit Account      Deposit Account Number: <b>03-1952</b> Deposit Account Name: <b>Morrison &amp; Foerster LLP</b> |   |
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|---|---------------------|---|----------------------|----------------------------------|-------------------------|------------------------------|------------------------------|
| <b>FEE CALCULATION</b> (All the fees below are due upon filing or may be subject to a surcharge.)   |                     |   |                      |                                  |                         |                              |                              |
| <b>1. BASIC FILING, SEARCH, AND EXAMINATION FEES</b>  |                     |   |                      |                                  |                         |                              |                              |
|   | <b>FILING FEES</b>  |   | <b>SEARCH FEES</b>   |                                  | <b>EXAMINATION FEES</b> |                              |                              |
| <b>Application Type</b>   | <b>Fee (\$)</b>     | <b>Small Entity Fee (\$)</b>                            | <b>Fee (\$)</b>      | <b>Small Entity Fee (\$)</b>     | <b>Fee (\$)</b>         | <b>Small Entity Fee (\$)</b> | <b>Fees Paid (\$)</b>        |
| Utility   | 300                 | 150   | 500                  | 250                              | 200                     | 100                          | 0.00                         |
| Design  | 200                 | 100   | 100                  | 50                               | 130                     | 65                           | 0.00                         |
| Plant   | 200                 | 100   | 300                  | 150                              | 160                     | 80                           | 0.00                         |
| Reissue   | 300                 | 150   | 500                  | 250                              | 600                     | 300                          | 0.00                         |
| Provisional   | 200                 | 100   | 0                    | 0                                | 0                       | 0                            | 0.00                         |
| <b>2. EXCESS CLAIM FEES</b>   |                     |   |                      |                                  |                         |                              |                              |
| <b>Fee Description</b>  |                     |   |                      |                                  |                         |                              | <b>Small Entity Fee (\$)</b> |
| Each claim over 20 (including Reissues)   |                     |   |                      |                                  |                         |                              | 50                           |
| Each independent claim over 3 (including Reissues)  |                     |   |                      |                                  |                         |                              | 200                          |
| Multiple dependent claims   |                     |   |                      |                                  |                         |                              | 360                          |
| <b>Total Claims</b>   | <b>Extra Claims</b> | <b>Fee (\$)</b>   | <b>Fee Paid (\$)</b> | <b>Multiple Dependent Claims</b> |                         |                              |                              |
| 24  | - 24 =              | 0   | 50.00                | 360.00                           |                         |                              | 0.00                         |
| HP = Highest number of total claims paid for, if greater than 20.   |                     |   |                      |                                  |                         |                              |                              |
| <b>Indep. Claims</b>  | <b>Extra Claims</b> | <b>Fee (\$)</b>   | <b>Fee Paid (\$)</b> |                                  |                         |                              |                              |
| 1   | - 3 =               | 0   | 200.00               |                                  |                         |                              | 0.00                         |
| HP = Highest number of independent claims paid for, if greater than 3.  |                     |   |                      |                                  |                         |                              |                              |
| <b>3. APPLICATION SIZE FEE</b>  |                     |   |                      |                                  |                         |                              |                              |
| If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(e)(1)(G) and 37 CFR 1.16(s). |                     |   |                      |                                  |                         |                              |                              |
| <b>Total Sheets</b>   | <b>Extra Sheets</b> | <b>Number of each additional 50 or fraction thereof</b> | <b>Fee (\$)</b>      | <b>Fee Paid (\$)</b>             |                         |                              |                              |
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| <b>4. OTHER FEE(S)</b>  |                     |   |                      |                                  |                         |                              |                              |
| Non-English Specification, \$130 fee (no small entity discount)   |                     |   |                      |                                  |                         |                              |                              |
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| <b>SUBMITTED BY</b> |   |                                   |                    |
| Signature           |  | Registration No. (Attorney/Agent) | 51,543             |
| Name (Print/Type)   | Thomas Chan   | Telephone                         | (650) 813-5616     |
|                     |   | Date                              | September 25, 2006 |

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VII. Argument  
VIII. Claims Appendix  
IX. Evidence Appendix  
X. Related Proceedings Appendix  
Appendix A Claims

**I. REAL PARTY IN INTEREST**

The real party in interest for this appeal is:

Advantest Corporation, a corporation duly organized under and pursuant to the laws of Japan, with a principal place of business at 1-32-1 Asahi-cho, Nerima-ku, Tokyo 179-0071, Japan.

**II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS**

There are no known related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

**III. STATUS OF CLAIMS****A. Total Number of Claims in Application**

There are 24 claims pending in application.

**B. Current Status of Claims**

1. Claims canceled: 0
2. Claims withdrawn from consideration but not canceled: 0
3. Claims pending: 1-24
4. Claims allowed: 0
5. Claims rejected: 1-24

**C. Claims On Appeal**

The claims on appeal are claims 1-24.

**IV. STATUS OF AMENDMENTS**

Subsequent to the Final Office Action mailed on April 25, 2006, no Amendment under 37 C.F.R. 1.116 was made in the response to the Final Office Action filed on June 14, 2006. An

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Advisory Action was mailed June 28, 2006 indicating that the request for reconsideration had been considered but did not place the application in condition for allowance.

#### V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed inventions are directed to a distributed operating system for a semiconductor test system. An embodiment of the invention comprises a host operating system for enabling control of at least one site controller by a system controller and at least one local operating system associated with each site controller for enabling control of at least one test module by an associated site controller. At least one test module performs testing on a corresponding DUT. (Figure 2, paragraphs [0036] and [0037].) The distributed operating system permits the use of third party modules. The hardware and software framework of the test system includes standard interfaces with which modules from different vendors may interact in a plug-and-play manner. (Figures 2 and 8, paragraphs [0009] and [0013-0015].)

#### VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1-5 are anticipated under 35 U.S.C. 102(b) by U.S. Patent No. 6,028,439 (the Arkin reference).

B. Whether claims 6-8, 24 are unpatentable under 35 U.S.C. 103(a) over the Arkin reference in view of US 2002/0183955 A1 (the Adler reference).

C. Whether claims 9-14, 19 are unpatentable under 35 U.S.C. 103(a) over the Arkin and Adler, and further in view of US 2003/0167277 A1 (the Hejlsberg reference).

D. Whether claims 15-18, 21-23 are unpatentable under 35 U.S.C. 103(a) over the Arkin reference.

E. Whether claim 20 is unpatentable under 35 U.S.C. 103(a) over the Arkin, Adler, and Hejlsberg, and further in view of US Patent No. 6,782,336 (the Shah reference).

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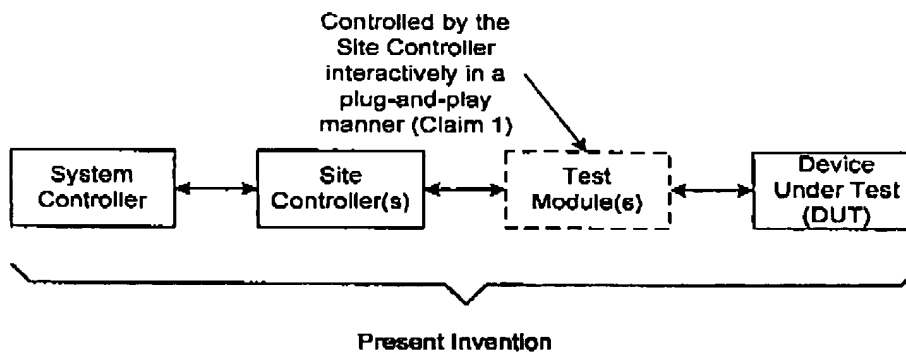
**VII. ARGUMENT**

Claims 1-24 were rejected by the Examiner in a Final Office Action mailed on April 25, 2006. Applicants respectfully request reversal of the rejection of these claims in view of the following remarks.

A. Claims 1-5 are patentable over the Arkin reference

**The Arkin Reference Fails to Disclose the System Structure Required by Claim 1**

Applicants respectfully submit that the Arkin reference does not disclose the structure of **System Controller-Site Controller(s)-Test Module(s)-DUT(s)** of the present invention, which is distinguished from the structure of **System Controller-Tester Module(s)-DUT(s)** disclosed by the Arkin reference (see depictions of the respective structure below). Thus, the Arkin reference fails to disclose each and every element of the pending independent claim 1.

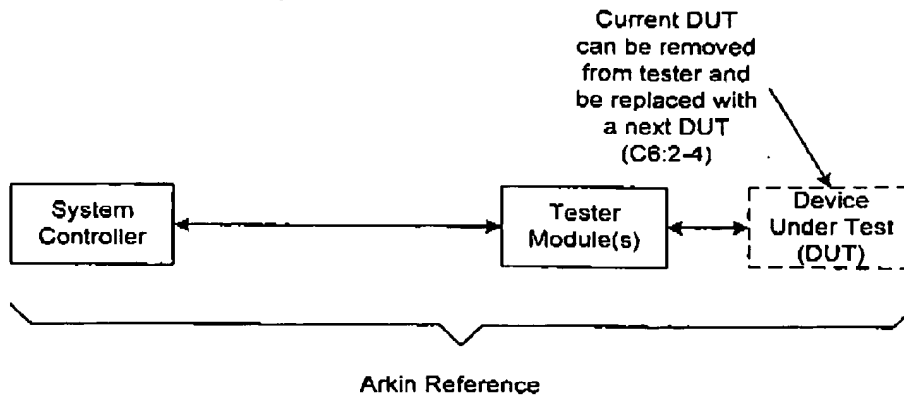


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To address this distinction, Applicants respectfully request the Examiner to respond in the Examiner's Answer: 1) which element in the Arkin reference discloses the system controller of claim 1; 2) which element in the Arkin reference discloses the site controller of claim 1; 3) which element in the Arkin reference discloses the test module of claim 1; and 4) which element in the Arkin reference discloses the DUT of claim 1.

Applicants have initially brought this distinction to the attention of the Examiner in the amendment after Final filed on December 5, 2005, then in the phone interview and in the amendment to the Non-final Office Action (note RCE filed on December 22, 2005) on April 13, 2006, and finally in the June 14, 2006 response to the Final Office Action. Applicants believe that it is essential to address this distinction before one can appreciate the claim limitation that "wherein the associated site controller controls at least one test module interactively with the associated site controller in a plug-and-play manner," which will be discussed in detail below.

**The Site Controller (if it exists at all) of the Arkin Reference Cannot Control the Test Module in a Plug-and-Play Manner**

The Examiner stated in the Advisory Action that "The Arkin reference teaches a test module which is interactive with the site controller and it is in a plug-and-play manner with the DUT" and "if applicant would amend the claim so that the site controller itself is used in a plug-

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and-play manner interactively with the test module; this would overcome the prior art of record.” (emphasis added) Applicants were surprised by the above statements because Applicants have discussed this issue with the Examiners on the April 13, 2006 interview and have followed the exact suggestion by the Examiners to clarify this issue in the April 13, 2006 response to the non-final Office Action by making the following amendment to claim 1 of the pending application: “wherein the associated site controller controls at least one test module interactively with the associated site controller in a plug-and-play manner.”

Based on the Examiner’s statements in the Advisory Action, disagreements still exist between the Applicants and the Examiner regarding the meaning of the term “plug-and-play” according to the present invention. From the first statement, the Examiner seems to suggest the Arkin reference teaches a test module that can be attached/detached from the test system. This is clearly not what the Arkin reference teaches. From the second statement, the Examiner seems to suggest the site controller of the present invention can be attached/detached from the test system. This is clearly not what the present invention teaches or claims.

To better understand this issue, let’s consider the statement “a computer controls a digital camera interactively in a plug-and-play manner” as an example. A person skilled in the art would understand this statement to mean it is the digital camera that can be attached/detached from the computer. Therefore, the site controller controls a test module interactively in a plug-and-play manner as claimed in the present invention means the test module can be attached/detached from the site controller (and therefore the test system). The Arkin reference clearly does not disclose this feature of the present invention. Applicants respectfully request the Examiner to respond in the Examiner’s Answer the question how does the site controller as disclosed in the Arkin reference controls the test module in a plug-and-play manner. Applicants submit that even if the Examiner identifies the Micro-controller (30) in Figure 2 of Arkin as the site controller, the Arkin reference fails to disclose the software and hardware infrastructure that can support attaching/detaching the rest of the logic blocks in Figure 2 from the Micro-controller (30) in a plug-and-play manner. In addition, Applicants submit that Figure 2 is the test module circuit board shown in Figure 1. A

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person skilled in the art would not consider attaching/detaching logic components from the same circuit board practical in reality.

The Examiner has relied on the disclosure of the Arkin reference that a DUT can be removed and replaced with a next DUT as allegedly anticipates a test module that can be detached/attached from the site controller and the test system (i.e. the capability of a site controller controlling a test module interactively in a plug-and-play manner). In fact, the Arkin reference is silent about whether the test module can be removed or replaced. It is a fact that a DUT is different from a test module according to both the present application and the Arkin reference. Therefore, the Arkin reference fails to disclose at least the element "wherein the associated site controller controls at least one test module interactively with the associated site controller in a plug-and-play manner" of the independent claim 1 of the pending application.

Therefore, for at least the reasons presented above, Applicants assert that claim 1 is allowable over the Arkin reference. Applicants also assert that claims 2-24, which variously depend from independent claim 1, are allowable for at least the reason that they depend from an allowable independent claim.

**B. Claims 6-8 and 24 are patentable over the combination of the Arkin and Adler references**

Applicants assert that claims 6-8 and 24 are allowable for at least the reason that they depend from an allowable independent claim.

**C. Claims 9-14 and 19 are patentable over the combination of the Arkin, Adler, and Hejlsberg references**

Applicants assert that claims 9-14 and 19 are allowable for at least the reason that they depend from an allowable independent claim.

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D. Claims 15-18 and 21-23 are patentable over the Arkin reference

Applicants assert that claims 15-18 and 21-23 are allowable for at least the reason that they depend from an allowable independent claim.

E. Claim 20 is patentable over the combination of the Arkin, Adler, Hejlsberg, and Shah references

Applicants assert that claim 20 is allowable for at least the reason that it depends from an allowable independent claim.

## VIII. CLAIMS APPENDIX

A copy of the claims involved in the present appeal is attached hereto as Appendix A. As indicated above, the claims in Appendix A do include the amendments filed by Applicant on April 13, 2006.

## IX. EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

## X. RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in II above, or copies of decisions in related proceedings are not provided, hence no Appendix is included.

Dated: September 25, 2006

Respectfully submitted,

By 

Thomas Chan

Registration No.: 51,543

MORRISON &amp; FOERSTER LLP

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**APPENDIX A****Claims Involved in the Appeal of Application Serial No. 10/772,327:**

Claim 1 (Presently presented): A distributed operating system for a semiconductor test system for testing at least one device under test (DUT), the operating system comprising:

a host operating system for enabling control of at least one site controller by a system controller, wherein the at least one site controller does not share a common clock; and

at least one local operating system associated with each site controller for enabling control of at least one test module by an associated site controller,

wherein the associated site controller controls at least one test module interactively with the associated site controller in a plug-and-play manner, and

wherein at least one test module performs testing on a corresponding DUT.

Claim 2 (Original): The distributed operating system of claim 1, wherein the host operating system synchronizes operation of the at least one site controller.

Claim 3 (Original): The distributed operating system of claim 1, wherein the host operating system arbitrates communication between the system controller and the at least one site controller.

Claim 4 (Original): The distributed operating system of claim 1, wherein the system controller monitors operation of the at least one site controller.

Claim 5 (Original): The distributed operating system of claim 1, wherein a site controller monitors operation of the at least one test module associated with the site controller.

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**Claim 6 (Original):** The distributed operating system of claim 1, wherein the host operating system comprises at least one host interface for communicating with the at least one site controller.

**Claim 7 (Original):** The distributed operating system of claim 6, the at least one host interface for communicating with at least one test module associated with a site controller.

**Claim 8 (Original):** The distributed operating system of claim 1, further comprising a test module interface for defining test module functions for interfacing a site controller to a first test module, wherein the test module interface is extensible to interface the site controller to a second test module, the unextended test module interface being insufficient for interfacing the site controller to the second test module.

**Claim 9 (Original):** The distributed operating system of claim 1, wherein the host operating system includes at least one host framework class.

**Claim 10 (Original):** The distributed operating system of claim 9, wherein the at least one host framework class is developed in a standard computer language to enable a user to develop application specific classes for controlling the at least one site controller.

**Claim 11 (Original):** The distributed operating system of claim 10, wherein the standard computer language is C or C++

**Claim 12 (Original):** The distributed operating system of claim 1, wherein each local operating system includes at least one local framework class.

**Claim 13 (Original):** The distributed operating system of claim 12, wherein the at least one local framework class is developed in a standard computer language to enable a user to develop application specific classes for controlling the at least one test module.

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Claim 14 (Original): The distributed operating system of claim 13, wherein the standard computer language is C or C++.

Claim 15 (Original): The distributed operating system of claim 1, wherein the number of modules controlled by each site controller is scalable.

Claim 16 (Original): The distributed operating system of claim 1, wherein the local operating system associated with a corresponding site controller enables the type of test modules controlled by the site controller to be reconfigured.

Claim 17 (Original): The distributed operating system of claim 1, wherein the host operating system enables the number of site controllers controlled by the system controller to be scalable.

Claim 18 (Original): The distributed operating system of claim 1, wherein the host operating system enables the number of DUTs tested by the testing system to be scalable.

Claim 19 (Original): The distributed operating system of claim 1, wherein the at least one test module comprises hardware and/or software.

Claim 20 (Original): The distributed operating system of claim 1, further comprising an emulator for simulating the usage of a candidate test module with the test system to verify the candidate module as compatible with the test system.

Claim 21 (Original): The distributed operating system of claim 1, wherein a first set of modules at a first test site is configured differently than a second set of modules at a second test site.

Claim 22 (Original): The distributed operating system of claim 1, a first test site having a first configuration to test a first DUT, and a second test site having a second configuration to test a second DUT, wherein the first and second test sites are reconfigurable to form together a third test site to instead test a third DUT.

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**Claim 23 (Original):** The distributed operating system of claim 1, wherein a first module at a first test site can access a second module at a second test site.

**Claim 24 (Original):** The distributed operating system of claim 1, further comprising a communications library having a predetermined set of functions and interfaces for use with test modules.

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